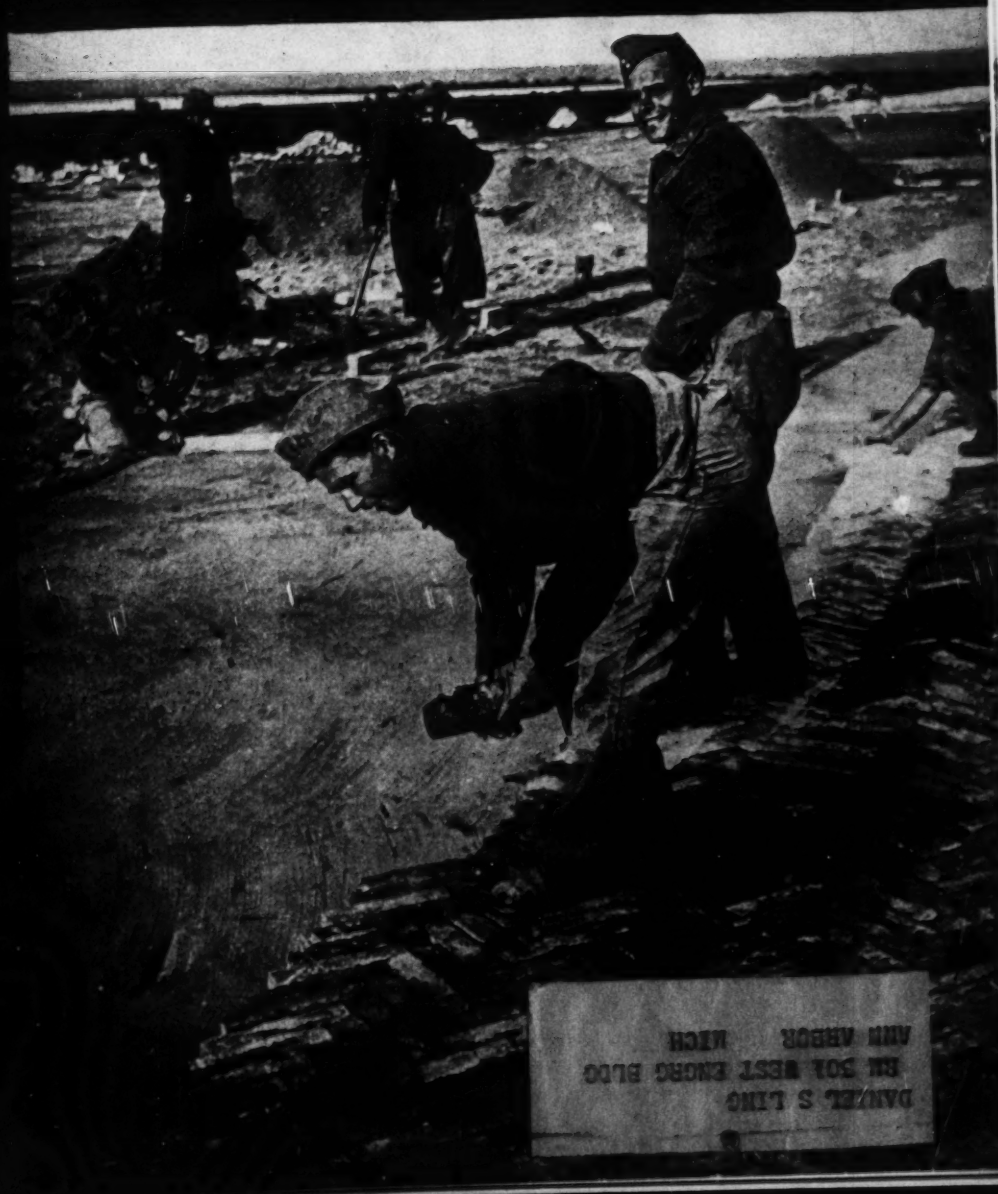
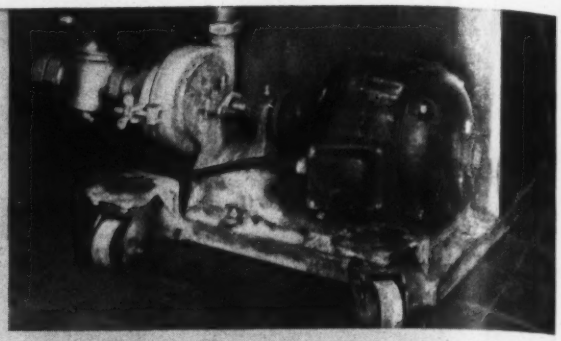
# ENGINEERING NEWS-RECORD



DANIEL S LING
BH 304 WEST ENGRG BLDG
ANN ARBOR MICH

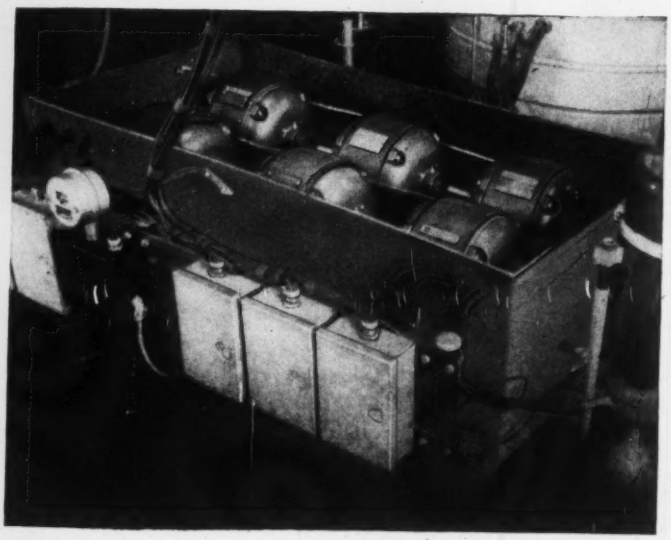
# DOUSED DAILY!



G-E Tri-Clad motor coupled to a centrifugal pump on a portable cleaner in the milk plant of H. P. Hood & Sons, Inc., Charlestown, Mass.

**POWERING A DAIRY PUMP, this Tri-Clad splashproof motor gets a dousing every day as the plant is hosed down. After years of service, frame and end shields are virtually uncorroded, insulation is going strong. G-E "protection tests", both in the development of the Tri-Clad design and in our daily production, help us assure you of long-lasting service from Tri-Clads on motor-wracking jobs like this.**

## "Hot Box" at 100% humidity tests TRI CLAD motor protection



Here is one of the many development tests which helped to prove the *extra* stamina engineered into the Tri-Clad design. In the bottom of this moisture box, just below the motor base, two inches of water was maintained at 212 F. The cover kept the humidity within the box at 100 per cent. By operating motors in this atmosphere to the breakdown point, G. E. got the low-down on the coil insulation's moisture resistance. Tri-Clad motors, in both open and splashproof construction, showed up unusually well in this extra-severe test. *General Electric Company, Schenectady, N. Y.*

**GENERAL ELECTRIC**

TRI CLAD MOTORS

**Every week more than 192,000 G-E employees purchase more than a million dollars' worth of War Bonds.**

The Week In Engineering and Construction

ENGINEERING NEWS-RECORD • MARCH 2, 1944 • VOLUME 132 • NUMBER 9

# Water treaty with Mexico brings strong protest

## Representatives of California report to Congress that allocation of 1,500,000 acre-ft. of Colorado River water to Mexico is at expense of American water users

California has raised a vigorous protest over the terms of the water treaty signed recently by representatives of this country and Mexico (*ENR*, Feb. 10, Vol. p. 169), and other states in the Southwest have joined in the protest.

Details of the treaty were made public on Feb. 15 when the President sent the treaty to the Senate for ratification. A long document of 28 articles, the treaty relates to waters of the Tijuana and the Rio Grande as well as the Colorado River. It provides for additional storage and control facilities on both sides of the border to expand the beneficial uses of the waters of the three rivers, and enlarges the powers of the International Boundary Commission, re-naming the commission the International Boundary and Water Commission.

### California protests

California's protest against the part of the treaty relating to waters of the Colorado River took the form of a resolution introduced into the House of Representatives by Representative Henshaw of California, which raises the question as to whether waters of the Colorado River are not "property belonging to the United States" which cannot be disposed of without action of both houses of Congress. The treaty is subject only to a two-thirds favorable vote in the Senate. Senator Hiram W. Johnson has recorded California's protest with the Senate Foreign Relations Committee.

Article 10 of the treaty guarantees to Mexico minimum quantity of 1,500,000 acre-ft. of water each year. Mr. Henshaw holds that the amount guaranteed to Mexico should not be more than the amount used from the natural flow prior to the construction of Boulder Dam, which was 750,000 acre-ft. He states that commitments already made under the Colorado River compact are such that 1,500,000 acre-ft. cannot be assured to Mexico without a great reduction in the amount of those commitments for use of water north of the border.

The situation with respect to the waters of the Lower Colorado River, as outlined by Mr. Henshaw, are as follows:

| | Acre feet |
|---|---|
| Available below Boulder Dam per year | 8,500,000 |
| Reservoir and other losses below Boulder | 600,000 |
| Available balance | 7,900,000 |
| Nevada contracts | 300,000 |
| California contracts (existing projects) | 5,362,000 |
| Arizona, requested contracts | 2,800,000 |
| | 8,462,000 |
| Deficit | 562,000 |
| If Mexico is conceded use prior to construction of Boulder Dam | 750,000 |
| Deficit | 1,312,000 |
| Additional guaranteel Mexico by new treaty | 750,000 |
| Total deficit | 2,062,000 |

If water is allowed only for what may be termed "present existing projects," Arizona's water is reduced to 1,160,000 acre-ft., and the total deficit is cut to 422,000 acre-ft.

### Arizona approves Colorado compact

Meanwhile, the Arizona Senate, at a special session of the legislature convened by Governor Sidney P. Osborn, on Feb. 19, voted approval of the Colorado River Compact, which grants to Arizona 2,800,000 acre-ft. of water annually from that stored in Lake Mead behind Boulder Dam, plus half of any surplus unapportioned by the compact. The state senate also voted approval of an appropriation of $200,000 to speed plans for Arizona's participation in the water resources of the Boulder Canyon project.

To all outward indications, this formal approval by Arizona of the compact brought to a close the long standing controversy between that state and California over the division of waters of the Lower Colorado River system. The Colorado River compact was drawn up in 1921 and subsequently was signed by all of the states in the Colorado River basin except Arizona.

The Colorado River Compact apportioned 7,500,000 acre-ft. per annum to the Upper Basin States (Arizona, Colorado, New Mexico, Utah and Wyoming) and 7,500,000 acre-ft. to the Lower Basin States (Arizona, California, Nevada, Mexico and Utah); and as the average annual discharge of the river for the previous 22 years

(*Continued on next page*)

# Army seizes Los Angeles utility

On Feb. 23, Col. Rufus W. Putnam, Los Angeles district army engineer, acting on instructions issued by President Roosevelt to the War Department, took over control of the Los Angeles Department of Water and Power to end a strike of municipal employees that had halted war production in many plants and prevented repair of storm damages to the electric distribution system.

This action by the federal government represented the first seizure in this war of a municipally owned utility system. It was prompted by a strike that began on Feb. 14 when employees were notified that they would get only $5 of a $15 monthly increase they sought. Production activities in more than 150 plants were affected by the walkout.

Some 3,000 workers were reported to have been on strike when Colonel Putnam assumed control and requested H. A. Van Norman, general manager of the Department of Water and Power to operate the system under army supervision.

Army operation will be continued until there is a settlement of the controversy between the city and the International Brotherhood of Electrical Workers local.

had been in excess of 16,000,000 acre-ft., the Lower Basin States were given the right to increase their "beneficial consumptive use" by 1,000,000 acre-ft. Apportionment of the water among the states was left to separate agreement. This apportionment was the subject of a long controversy between Arizona and California.

#### Previous agreement ignored

The compact did not recognize the agreement between the United States and Mexico by which the Imperial Valley Irrigation Canal was constructed through Mexican territory. That agreement provided that Mexican land owners were entitled to receive water from the Colorado River up to one-half of the minimum natural flow of the river at the international boundary. The compact said that if the United States thereafter should recognize that Mexico had any right to the use of water of the Colorado River system, that such water shall be supplied first from the waters which are surplus over and above the aggregate of quantities allocated to the two basins and that any allocation to Mexico in excess of this surplus "shall be equally borne by the Upper Basin and Lower Basin."

• • •

## Oregon wants "Good Neighbors"

A plan to bring a group of Latin American engineers to Oregon to work with state engineers on highway construction was endorsed at a meeting of the Oregon State Highway Commission on Feb. 17.

Under the "Good Neighbor" program adopted by the Oregon commissioners, the Central and South American engineers will be selected by their respective governments who will be responsible for their travel and living expenses. They will work in Oregon in 6-month periods at minimum salaries of $100 a month, learning United States construction techniques and the use of mechanical equipment, meanwhile giving state engineers the benefit of their services.

# Northeastern highway officials consider pending road legislation

### *Association of Highway Officials of North Atlantic States meet to discuss postwar highway program and related problems*

Questions relating to the character of highway legislation now in Congress and its adequacy in meeting the postwar needs of the populous states of the Northeast occupied much of the time at the 20th annual meeting of the Association of Highway Officials of the North Atlantic States, held in New York Feb. 17–18. Other subjects discussed were the probable effect of postwar developments in the field of aviation on highway requirements, postwar planning for public works in Great Britain and in New York State, and transportation developments after the war.

The problems of New York City and New York State were brought up briefly at the opening session by Lt. Governor J. R. Hanley and by Mayor F. LaGuardia of New York. The latter said that growing traffic congestion would present New York City with serious problems within eighteen months after the war. and that thees problems could not be met without liberal assistance from the federal government.

#### Federal legislation

Discussion of current plans for federal aid to postwar highway undertakings was introduced by Herman A. MacDonald, commissioner of public works of Massachusetts and president of the association, who said that there are three controversial issues with respect to postwar highway planning that have not yet been settled. These relate to formulas for apportioning federal aid among the states, the proportion of the cost of the proposed work that should be borne by the federal government, and the size of a postwar program for which materials, construction equipment and contractors will be available.

Mr. MacDonald holds that the old formula is not equitable as it takes too much from the states who have borne the brunt of federal taxation in the past and gives them too little. While he recognizes that the strong states must aid the weak ones, he holds that the strong states cannot be a perpetual Santa Claus. He recommends apportionment of federal aid among the states, five-eights on the basis of population, two-eights on post-road mileage and one-eighth on area.

Because of the federal excise taxes put on to cushion the federal government's losses due to declining gasoline tax income, Mr. MacDonald believes that it will be logical to increase the federal government's share of the cost of work on the federal-aid system from 50 to 60 percent.

As to the billion dollar program put forward by the American Association of State Highway Officials, Mr. MacDonald states that as far as Massachusetts is concerned, it will be able to use all the money that comes to it under any formula. He expects to see the program expand to around three billion dollars and to continue for at least five years.

#### An unfortunate controversy

S. C. Hadden, chairman of the Indianna Highway Commission and president of the American Association of State Highway Officials, stressed the importance of coming to an agreement on the proposed highway legislation at the earliest possible date. Wrangling over inconsequential details, said Mr. Hadden, may result in Congress taking no action, which might result in our having another WPA program instead of a definite program of postwar highway construction.

Mr. Hadden does not look upon the A.A.S.H.O. bill now before Congress (HR 2426) as a "sacred document." He expects to see it radically changed as a result of the hearings to begin this month.

As to the suggestion of some highway officials that postwar federal aid be apportioned among the states on the basis of need rather than on the basis of some formula, Mr. Hadden pointed to the possibility that "need" might turn out to be political need rather than physical need if too much stress is laid on the impossibility of allocating the funds by some simple formula.

(*Continued on page 8*)

**ENGINEERING NEWS-RECORD.** Published every Thursday. Return postage guaranteed. Vol. 132, No. 9. Price 25c per copy. Allow at least ten days for change of address. All communications about subscriptions should be addressed to the Director of Circulation, 99-129 N. Broadway, Albany, 1, N. Y., or 330 W. 42nd Street, New York, 18, N. Y. Subscriptions, United States, U. S. Possessions and Latin American Republics, $5.00 for one year, $8.00 for two years, $10.00 for three years. Canada, $5.50 for one year, $9.00 for two years, $11.00 for three years. Great Britain and British Possessions 54 shillings for one year, 108 shillings for three years. All other countries, $9.00 for one year, $18.00 for three years. Entered as second-class matter October 29, 1936, at the Post Office at Albany, N. Y., under the Act of March 3, 1879. Printed in the U.S.A. Cable Address: "McGrawhill New York." Member A.B.P. Member A.B.C. Copyright 1944 by McGraw-Hill Publishing Company, Inc. James H. McGraw, Founder and Honorary Chairman; James H. McGraw, Jr., President; Howard Ehrlich, Executive Vice-President; Mason Britton, Vice-President; Curtis W. McGraw, Treasurer; Joseph A. Gerardi, Secretary; J. E. Blackburn, Jr., Circulation Manager. Publication office: 99-129 North Broadway, Albany, 1, N. Y. Editorial and Executive Offices: 330 West 42nd St., New York, 18. District Managers and Branch Offices: Fred G. Hudson, 520 N. Michigan Ave., Chicago, 11; J. W. Otterson, 68 Post St., San Francisco, 4; Aldwych House, Aldwych, London, W. C. 2, England; Washington; J. M. Spackman, New York; A. B. Cozzens, Philadelphia; E. E. Duffy, Jr., Cleveland; B. F. Horn, Detroit and Chicago; Richard Y. Fuller, St. Louis; R. N. Phelan, Los Angeles; J. I. Ballard, Boston; Ralph Maultsby, Atlanta, Ga.

ENGINEERING ABROAD — AS SEEN BY ENR EDITORS

# South From Pearl By Air

**By Nathan A. Bowers**
Pacific Coast Editor, Engineering News-Record

**This is the second of a series of letters received from Mr. Bowers, who is now on a tour of Southwest Pacific bases to report war construction activities. His first report appeared in our issue of Feb. 17, p. 221.**

NOUMEA, NEW CALEDONIA, Feb. 10.—efore we left Pearl a bronzed Seabee ficer, just back from the South Pacific, ade a casual remark that has come mind many times this past week we flew down across the equator. peaking of conditions that govern conruction here he said, "There's so mn much water and so little land". hat summarizes the picture. You will ppreciate the significance of the landater ratio after a day long flight (some 730 nautical miles) during which u've seen only one island. And that e has less elevation than Yerba uena, which the San Francisco Bay idge uses for a stepping stone.

But I'm ahead of the story, which ould begin with mention of a predawn ke-off in a Martin patrol bomber, a ll-wing bimotored ship skippered by H. Hamilton of Pan American Airys, now serving with NATS (Naval ir Transport Service, a well-organed and highly important factor in ilitary transportation out here). Pasnger facilities of the PBM weren't table (!!) but we came to hold in gh esteem this good ship and its ew before it delivered us safely some deg. south of the equator.

### Overnight at an atoll

The destination of our first day-long ght, and where we stayed overnight, as an atoll with a "land mass" nohere more than a few hundred feet de and with a maximum elevation of me 8 ft. It is to be expected that cilities provided at such places ocpy just about all the useable area.

Our first landing brought us down m comfortable coolness at El. 8,000 full appreciation of "tropical humid-" where everything is sticky, beginng with one's own body and including erything one touches. It was a relief learn that south of the equator to ar a necktie is to be "out of uniform." ace entering equatorial regions I haven't even seen a necktie. (Score one for our side).

From the 8 x 12-in. window by my seat in the plane could be seen our right engine (Yes, if you must: Curtiss-Wright). On our second day out, in a noon take-off at Island X, I looked up to see this engine enveloped in flames that streamed over and blackened the metal plates of the wing. The situation looked bad for a bit but turned out to be a blessing in disguise. A cylinder head had "blown" and the resultant flow of flaming gasoline started a fire that had to be put out quickly —something that couldn't well be done in the air.

Had the break come a minute later, we'd have been out over the reef—an hour later and we might have had to sit down at sea to fight the fire. And these loaded birds can't take off on one motor. As it was, the fire was soon out and while we waited to have a new cylinder put in we enjoyed an unscheduled overnight stop with a lot of native color.

Island X, in addition to its high humidity, has vampire bats (one we saw had a wingspread of about 18 in.) lizards that visit the Quonset huts by night and ants with a liking for leather. Natives know little English and rather less about money. One who refused to sell an attractive shell necklace for $1, later traded it willingly for three cigarettes, a book of matches and thirty cents in shining coins.

"Trust our navigator to find his way around," said one of the crew when that individual rejoined our group, proudly displaying a grass skirt accompanied by (believe it or not) a brassiere lined and decorated with feathers.

"Where did you get it?"

"Oh, down yonder in that far row of huts," he said. "Yes, the second one, why?"

"Well," said one of the white residents (jokingly, I hope) "that's where our leper suspect lives."

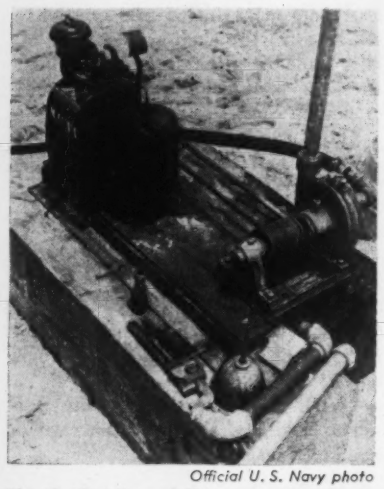
### Facilities on the island

Island X is relatively large (8 mi. long; hills almost 400 ft. high). The

***Fig. 1. Construction of storage facilities for potable water commands the attention of these Seabees who are erecting a 40,000 gal. tank in a secluded spot on a South Pacific island.***

Seabees have built airports, a system of fine highways and numerous "fingers," which are rock-faced fills built to serve as piers, projecting out into deep water with a concrete ramp on the outer end. The ramps are for use by landing barges or by landing gear, which is kept at such stations for bringing large seaplanes ashore to make motor changes.

A Seabee maintenance unit (CBMU in Navy lingo, with all letters pronounced) has the important job of keeping these essential facilities in



*Official U. S. Navy photo*

***Fig. 2. Small centrifugal pump unit to supply seawater to a concrete mixer.***

good shape. The value of such service was demonstrated the day before we arrived in work done repairing damage caused by a furious, tropical storm.

"Paved" surfaces are made adequate for heavy loads, even on wet foundations, with a well-rolled 9-in. layer of coral and shells. This combination can be so firmly compacted that one suspects a natural cementitious quality. Pit-run coral fragments with a considerable seawater content are mixed with cement in a 6:1 or 8:1 ratio for concrete foundations and other structures. I was surprised to learn, too, that where freshwater can be had only by distillation, seawater has been used for mixing concrete "with good results". (Army engineers have had the same experience on the dry west coast of South America—see "Letter from Latin America," *ENR* Nov. 14, 1943, p. 658).

Where natives are employed by Seabees, as they frequently are, care has to be taken to keep them away from dangerous tools. One native had a hand blown off and another accident came near causing several fatalities, when natives appropriated Seabee equipment to imitate fishing methods they had seen used by early landing parties; i.e. paddle a canoe to a promising fishing location, tie a hand grenade to a 40 m/m cartridge, pull the pin on the grenade and toss overboard!

Flight across the Fiji Islands is full of interest; an archipeligo with vivid colors and a picturesque setting. First comes a single atoll, like a far-flung outpost; beyond is a small island or two, then other and increasingly larger islands until land areas preponderate. The reefs outlining the shores are often half a mile out. Along the reefs a broad, snow-white surf zone separates the dark blue of deep water from the olive green of the shallows. Tropical forests crowd the beaches and as we progress toward the city of Suva, forest growth is more and more replaced by large plantations. (At least we noted tree growth aligned in both directions.)

Setting down for fuel at Suva we find among the ground crew natives who are unmistakably marked as Fijians by the characteristic headdress. The Fiji Islands! Once this spot seemed so far off and out-of-the-way as to be almost legendary. Now it is about 36 hrs. by air from our West Coast. What does this mean in terms of postwar traffic?

• • •

## Site chosen for bridge over river at Memphis

A site for the long proposed new highway bridge over the Mississippi River at Memphis was finally selected on Feb. 24 by the Memphis and Arkansas Bridge Commission. The site is a little downstream from the present Harahan bridge and the Frisco R.R. bridge. It extends from Iowa Ave. in Memphis to the top of the St. Frances levee on the Arkansas side, where a connection will be made with the Arkansas highway system.

As the present bridge is considerably below the central business district, a site somewhat more than a mile north of the present bridge, opposite Winchester St., had been proposed. That site finally was rejected for two reasons, first because a bridge at that point would cost nearly twice as much as the bridge at the site finally selected, and second because the Mississippi River Commission had advised the bridge commission that navigation interests would offer such strenuous objection to construction of a bridge over the river at that site as to make it improbable that the War Department would issue a permit for the bridge.

The present bridge is a combination highway and railroad structure with railroad tracks down the center and a single lane roadway on each side. A four-lane bridge is proposed at an estimated cost of $7,000,000.

The bridge commissioner has applied to the highway departments of Tennessee and Arkansas to make the necessary application to the War Department for a permit to build the bridge, to prepare final plans and specifications, to enter into a federal-aid project agreement for construction of the bridge, and to seek authorization from the War Production Board for the start of work as soon as the plans have been prepared and the permit received.

A public hearing on the bridge application will be held in Memphis on Mar. 15.

• • •

## Oil lines across Mexico reported under study

Unconfirmed rumors are afloat in Washington to the effect that the Army and Navy have projected two crude-oil pipe lines of 24 and 36 in., with a daily capacity of about 500,000 barrels, to be built at a cost of from 50 to 60 million dollars across the Isthmus of Tehuantepec in southern Mexico from Puerto Mexico to Salina Cruz.

The line would pump Texas oil, which had been shipped by tankers from Houston to Puerto Mexico, to meet war needs in the Pacific. As a part of the rumored undertaking, it is proposed to dismantle a large Texas refinery and re-assemble it at Salina Cruz.

The Navy Department states that construction of such a pipe line has been under consideration since before the war, to supplement existing supplies in the Pacific area, but that nothing definite has been done about it up to the present time.

Informed persons point out that the only unused capacity of Texas fields at present is 200,000 barrels, in comparison with the 500,000 capacity of the proposed pipe lines, and that when the pipe line to Oklahoma and that to the Houston-Beaumont area are completed in April, these lines will carry the present unused Texas production.

• • •

## New sea wall planned for Redondo, Calif.

City Engineer D. L. Bundy of Redondo, Calif., is preparing plans for a 20-ft. sheet-piling bulkhead to prevent a recurrence of the disaster that struck that beach city recently.

The new sea wall will cost an estimated $60,000 and state aid for a part of the cost will be sought. The plans call for an extension of the barricade to the ocean front near Third Place, fronting the ocean area from that point north to Fourth Street. The estimated cost of repairing completely the damaged sections of beach front was set at $200,000.

Maj. Gen. William E. R. Covell

Brig. Gen. Thomas F. Farrell

Army Signal Corps Photos

Col. Lewis A. Pick

# Engineer High Command, China-India-Burma Theater

Farthest from home and as tough as e toughest is the job assigned to Amer- an forces of the China-India-Burma mmand under Lt. Gen. Joseph W. illwell. Having been "run out of urma," to use his own words, the man ho is known as "Uncle Joe" to all of s troops is beating his way back rough the jungles to a point where he n come to grips with the Japs, run em out in turn, and get military aid his Chinese allies. Until he can reach e Japs, his job is one of construction d supply. And since both of these erations are primarily engineering in ture, General Stillwell's staff is pre- minantly an engineering one.

In the January 6 issue we were able to nounce that his deputy commander is aj. Gen. Daniel I. Sultan, an Engineer ficer of 35 years' service, well known chief of the Nicaragua Canal surveys, d later as Engineer Commissioner of e District of Columbia. In this issue e are permitted to reveal the three top icers of his Services of Supply, in ality his Engineer high command, and publish their pictures.

### Covell recalled to active duty

Maj. Gen. William E. R. Covell, as ead of S.O.S., is top engineering officer the China-India-Burma Theater. A aduate of West Point in 1915, he rved continuously in the Corps of En- neers, including two years in France d Germany, until May 31, 1940, when retired from the Army to become gen- al manager of a large lumber, paper d chemical company in Crossett, Ark. t his days as a civilian were num- red, and on June 1, 1941, he was re- lled to active duty and assigned to the fice of the Quartermaster General. There followed brief intervals in the fice of the Chief of Engineers and in the office of the Undersecretary of War, but a month after Pearl Harbor General Covell was named division engineer of the Caribbean Division, where until May, 1943, he directed the vast expansion of our defense bases from Bermuda to Trinidad. A year and a half later, in the words of the War Department, "he was given an unannounced overseas assignment," which now turns out to have had "Destination, India" stamped on it.

Many engineers will remember him as district engineer at Buffalo from 1920 to 1922, and even more will recall his service as assistant engineer-commissioner of the District of Columbia from 1924 to 1928. Beginning in May, 1933, General Covell was assistant engineer of maintenance of the Panama Canal, returning in the spring of 1936 to become district engineer at Pittsburgh where, under his direction during the next four years, the great flood protection works for this vital industrial area were carried out.

### Former New York engineer

Brig. Gen. Thomas F. Farrell is the chief engineer of the China-India-Burma Theater. Present-generation engineers will remember him as the chief engineer of the New York State Department of Public Works from 1930 to 1941, or perhaps as commissioner of canals and waterways in that department during the previous four years. But General Farrell is also an Engineer officer of long standing.

Graduating from Rensselaer Polytechnic Institute in 1912, he was in the Corps of Engineers as a second lieutenant by 1916, in time to serve gallantly with the First Engineers throughout all of their major offensive actions in the first World War. He was awarded the Distinguished Service Cross when, as a major, he led his battalion in taking and holding a strategic hill during the Meuse-Argonne battle. Returning from France General Farrell remained in the Corps until 1926. His 15 years as a civilian ended in February, 1941, and two years later he was on his way to India.

### Assigned to Ledo Road work

Col. Lewis A. Pick drew one of the most difficult assignments of the war when he was placed in charge, in October, 1943, of the construction of the Ledo Road, the highway from northeastern India into Burma, whose ultimate terminus is a connection with the Burma Road into China.

Casually "joining up" by being accepted for Officers Training School in 1917 he served in France with the 23rd Engineers, which built roads, railroads and depots as well as seeing combat duty in the Argonne. Although he was discharged in 1919, Army Engineering was in his blood, and in 1920 he was recommissioned a captain in the regular army and sent to the Philippines to organize a Filipino Engineer Regiment, which as the 14th Engineers was later to prove itself on Bataan.

Returning to the U. S. in 1923, Col. Pick took in the various Engineer Schools as well as the Command School at Fort Leavenworth. His first district engineer assignment was at New Orleans. Later he was executive officer of the Ohio River Division at Cincinnati.

His last assignment before going to India was as division engineer of the Missouri River Division at Omaha. In that post he handled all of the vast war construction in a nine-state Middle Western area, and during his tour of duty was responsible for developing a postwar flood-control and navigation plan for the Missouri River.

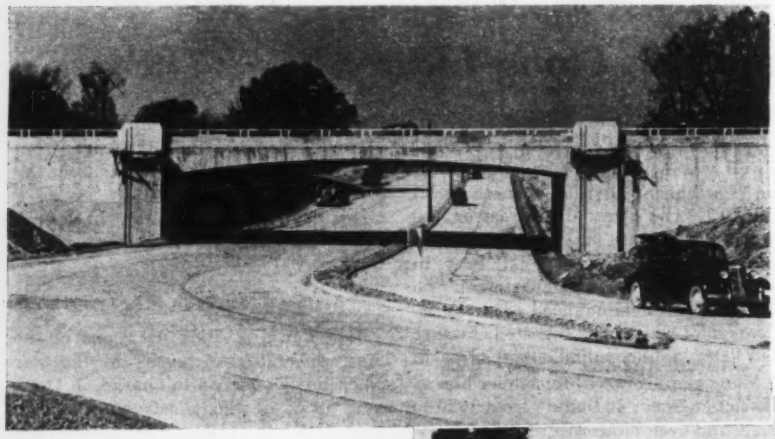
# Ohio builds bridges on access roads

As part of the war program the Ohio State Highway Department has built many bridges on access roads throughout the state, including those pictured on these pages. The total yearly bridge program the last two years has been considerably less than in normal peacetime years, but several large structures were built.

The bridges illustrated were designed for "war" stresses or 20,000 psi. for reinforcing and structural steel. Also, the use of critical materials was kept to an absolute minimum. Copper flashings, galvanized expansion joints and metal railings and similar items were eliminated. When expansion joints were required, they were built of ordinary steel or non-critical materials. Timber was used for many railings. Undoubtedly, under normal conditions some designs would have been much different and more materials now critical would have been used.

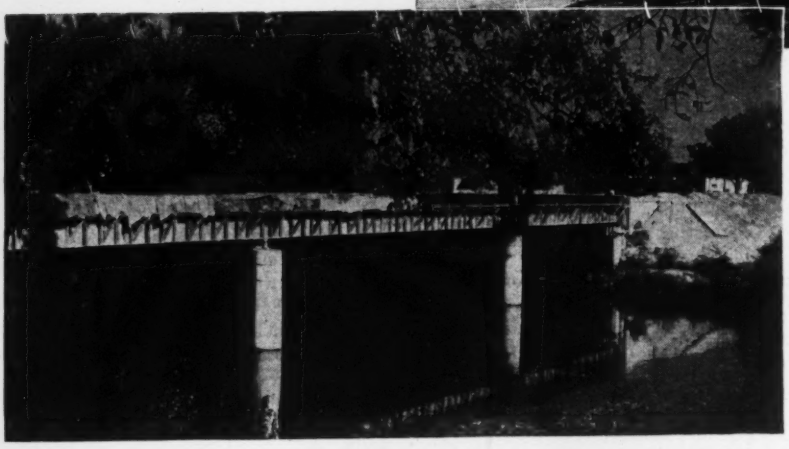
Cost of some projects was shared equally by the state and federal governments. For other jobs the federal government paid a bigger percentage.

For the Ohio department Hal G. Sours is director of highways, W. S. Hindman chief engineer of bridges and railroad crossings, and J. J. Heier railroad crossing engineer.

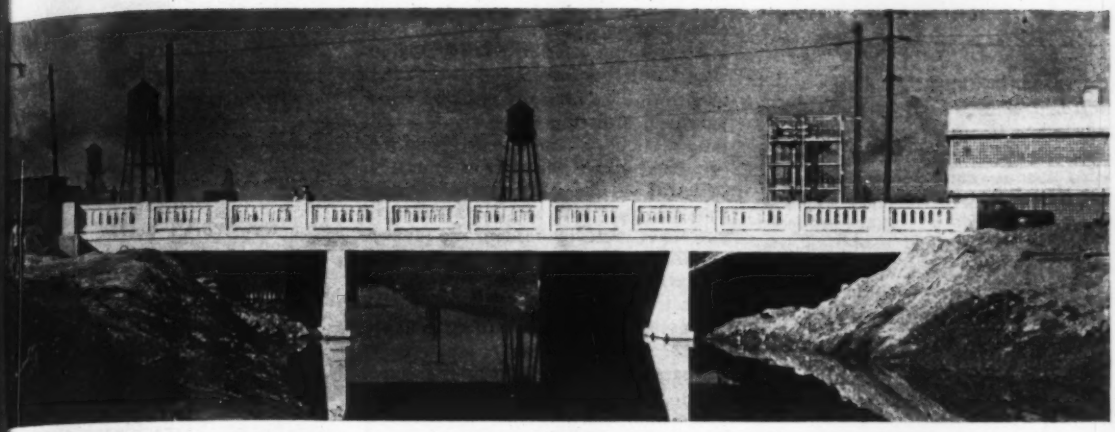


***A $65,000 concrete rigid-frame structure of 76-ft. span (at left) was built to carry a divided, four-lane highway over an access road to a war plant in Cleveland. The crossing was built as part of a 4-mi., $1,740,000 project.***

***This bridge (at right), which has two 36-ft. clear spans, carries three railroad tracks over an access road in Franklin County. Steel beams support the concrete deck. The $390,000 project was begun before Pearl Harbor, but progress was slow because railway traffic restricted work to one track at a time.***



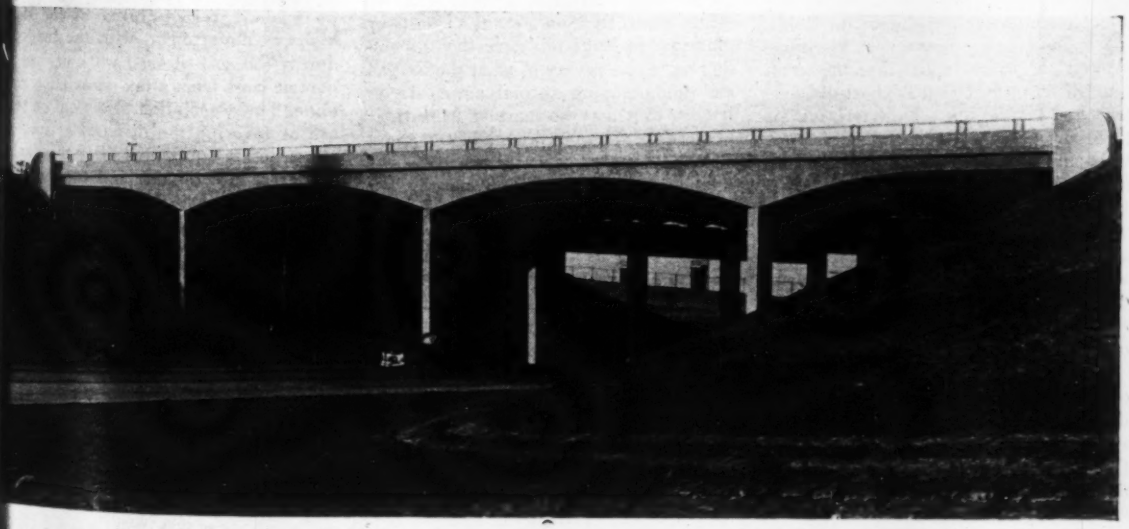
***Costing $53,000, this 52-65-52-ft. continuous, steel-beam bridge (at left) was started as part of a WPA project, but was completed with defense access funds. It spans the East Fork of the Mahoning River in Newton Falls. A 28-ft. pavement and two 6-ft. sidewalks are provided.***



*When construction of an access project on Wilbeth Road (above) in Akron required a new bridge over the Ohio Canal, this continuous reinforced-concrete slab structure with spans of 32, 40 and 32 ft. was built. The $60,000 crossing has a 55-ft. roadway flanked by two 6-ft. sidewalks.*

*A new road near the Akron airport to carry through traffic required two bridges. One of these (at right) is a 44-ft., $50,000 structure spanning the B. & O. R. R. It provides a 56-ft. roadway and two 6-ft. sidewalks. Bridge in background is on an old road parallel to the new highway.*

*The second crossing (below) built as part of the road near the Akron airport is a continuous 41-55-55-41-ft. reinforced concrete beam bridge spanning a highway and a railroad. The 56-ft. deck carries a divided highway flanked on either side by a 6-ft. sidewalk. The bridge cost $98,000.*



## N. E. highway officials

(*Continued from page 2*)

Mr. Hadden noted that the proposed interregional highway system that was proposed to Congress by the President in January (*ENR* Jan. 27, Vol. p. 144) called for an annual expenditure on that system of $750,000,000, which is three-quarters of the program proposed by the A.A.S.H.O. That would indicate, he said, that the billion dollar program of the A.A.S.H.O. ought to be raised.

Like views were expressed by Charles Upham, engineer-director of the American Road Builders Association, who expressed the view that Congress may authorize one and one-half billion to cover all levels of road work.

### New legislation

William J. Cox, commissioner, Connecticut Highway Department, called attention to a bill recently introduced into Congress by Representative Miller from Connecticut (HR 4170) which attempts to allocate federal funds for the postwar program among the states on the basis of anticipated postwar unemployment rather than on the basis of the old federal-aid formula on the A.A.S.H.O. formula. (Vol. p. 307 of this issue.) On the question raised by Mr. Hadden with respect to the possibility of the funds being allocated on the basis of political needs rather than physical needs, Mr. Cox expressed the view that some of the formulas considered by the A.A.S.H.O. were based on political expediency rather than need. He believes that Congress will act fairly if the facts are properly placed before it.

### Air transport trends

L. Welch Pogue, chairman of the Civil Aeronautics Board, does not expect to see the expansion of air transportation after the war have any serious effect on highway development. Pointing to the fact brought out in the interregional highway report that the great bulk of highway travel is short-distance travel, Mr. Pogue characterized air transport as supplementary to highway transport rather than competitive with it. He is chiefly concerned that lack of adequate airports and adequate highway connections between the airports and the major centers of population will handicap the development of long distance air transportation just as poor roads handicapped the early development of automotive transportation.

Similar views were expressed by Theodore Morgan, president of the Canadian Good Roads Association, who stated that while the war has provided Canada with a splendid system of airfields, those fields are not adequately tied into the highway systems serving centers of population.

Russell E. MacCleery, National Highway Users Conference, also does not look for radical changes in the air transport field after the war. Progress will be evolutionary rather than revolutionary, he said. Highway transportation still will be the basic form. He noted that the war had cut the number of passenger automobiles in use due to inability to replace worn out vehicles and observed that it will take several years to get back to prewar levels. As a consequence, Mr. MacCleery believes that the states cannot count on any early increase in their revenues from gasoline taxes. This fact, he added, must be taken into consideration in planning the financing of postwar highway operations.

### City-state relationships

State highway officials must work to eliminate the traditional hostility between the states and the cities in highway matters if a program such as that put forward by the National Interregional Highway Committee is to be a success, according to Thomas H. MacDonald, commissioner, Public Roads Administration. Development of such a program must begin with the city and extend outward, which calls for close cooperation between city public works departments and the state highway departments.

After the city problem has been solved, said Mr. MacDonald, the state highway department must tackle the proper integration of their system with the secondary road system. This calls for studies of land utilization, which are social in character rather than engineering.

### England's postwar plans

Spencer Miller, Jr., state highway commissioner of New Jersey, who recently returned from a study of postwar planning in England, gave the association a graphic review of what the British are doing, laying special emphasis on lessons that may be learned from their planning. The striking facts about British planning, said Mr. Miller, are its boldness, its recognition that the war actually is an era of social revolution, and that all levels of society are actively participating in the postwar planning.

With respect to highways, Mr. Miller noted first that the British are definitely planning for the decentralization of the industrial life of the country. In laying out highways to serve the large industrial centers such as London, the arterial highways are being located in such a way as not to bisect autonomous communities, as it is proposed to encourage the development of such communities as part of the decentralization plan.

Mr. Miller said that our highway officials could well afford to study the methods of land acquisition proposed for British postwar public-works projects. Under the plan, 75 percent of the unearned increment in the value of land taken for public projects reverts to the government.

### New York's postwar plans

The realistic way in which planning for postwar public works is being conducted in New York State was outlined by Charles H. Sells, superintendent of the Department of Public Works. In 1942 the state legislature created the Temporary State Commission for Postwar Public Works Planning and provided it with $3,500,000, only $150,000 of which could be spent for administration. The remainder was to be used to assist municipalities and other state agencies in the actual preparation of plans and contract drawings for postwar projects. The commission also was charged with stimulating and coordinating such planning. The commission is authorized to share equally with the municipality the cost of such plan preparation up to 4 percent of the estimated cost of the project. As of Jan. 1 of this year, $327,000,000 of such work had been planned, and the preparation of plans for additional work was being actively prosecuted.

As to highway work, Mr. Sells said that none of it was of a made-work character, and all except work on the projected "thruway" system could be characterized as needed work that had been deferred due to the war. Details of this program were given by Mr. Sells in an article in the Jan. 27 issue of *Engineering News-Record*, Vol. p. 120.

Among the several resolutions adopted by the association at the close of the meeting was one recommending that the maintenance of airports and flight strips be made a responsibility of the state highway department, with the funds to defray the cost of such work derived in part at least from a tax on aviation gasoline. The association also went on record as favoring the disposal of surplus construction equipment after the war at moderate cost to state and county highway department; disposal to be handled in such a way as not to seriously affect the construction equipment industry.

### New officers

As noted briefly in last week's issue, William J. Cox, commissioner, Connecticut State Highway Department, was elected president to succeed Herman A. MacDonald, of Massachusetts. Roy B. Traver of Syracuse, N. Y., was elected vice president, and A. Lee Grover was reelected secretary-treasurer.

## New postwar road bill introduced in Congress

A new proposal for expenditure of billion dollars of federal funds a r for three years after the war on hway construction is contained in a introduced in the House by Repre- tative Miller of Connecticut (HR 0) and referred to the Committee on ds, which began hearings Feb. 28 HR 2426, a somewhat similar pro- l drafted by the American Associa- of State Highway Officials. Presum- y, the new bill has been offered as a stitute for HR 2426, which has not with the approval of highway offi- in most of the more populous in- trial states because it does not give quate weight to the needs of those es (*ENR*, Jan. 27, Vol. p. 119).

### Apportionment changes

Both bills call for the appropriation $1,000,000 a year for each of the e years following the cessation of tilities, but they differ radically in method of apportioning the money ng the states. Apportionment in HR 6 is on the basis of one-half accord- to population, one-quarter on area one-quarter on post-road mileage. er the provisions of HR 4170, $600,- ,000 would be allocated to the states h year "on the basis of the ratio ch the estimated number of persons will be demobilized from the mili- and industrial service in each state rs to the total estimated number of ons to be demobilized in all of the es," the estimate of demobilization e based on figures reported in the y, 1943, issue of *Monthly Labor Re-* of the Bureau of Labor Statistics, S. Department of Labor; another 0,000,000 a year is to be apportioned ccordance with the provisions of tion 21 of the Federal Highway Act 921 (equal weight to population area post-road mileage); and the re- ning $200,000,000 a year is distrib- on the basis of the ratio that the motor-vehicle registration in each e bears to the total motor vehicle stration in all the states.

### Distribution of funds

he $600,000,000 a year must be t on the interregional highway sys- (*ENR*, Jan. 27, Vol. p. 144) and on rnate and auxiliary routes. The first ,000,000 is to be spent on the fed- aid primary and secondary systems, the second $200,000,000 must be on roads or streets not on the fed- aid systems and under the jurisdic- of either the states or their local ivisions.

he bill states that "the federal share payable on account of any project provided for by the funds made available by this act shall not exceed 50 percent of the cost thereof plus a percentage of the remaining 50 percent of the cost in any state containing unappropriated and unreserved public lands, other federal lands and nontaxable Indian lands, individual and tribal, exceeding 5 percent of the total area of all lands therein, equal to the percentage that the area of such lands in such states is to its total area."

### Right of way costs

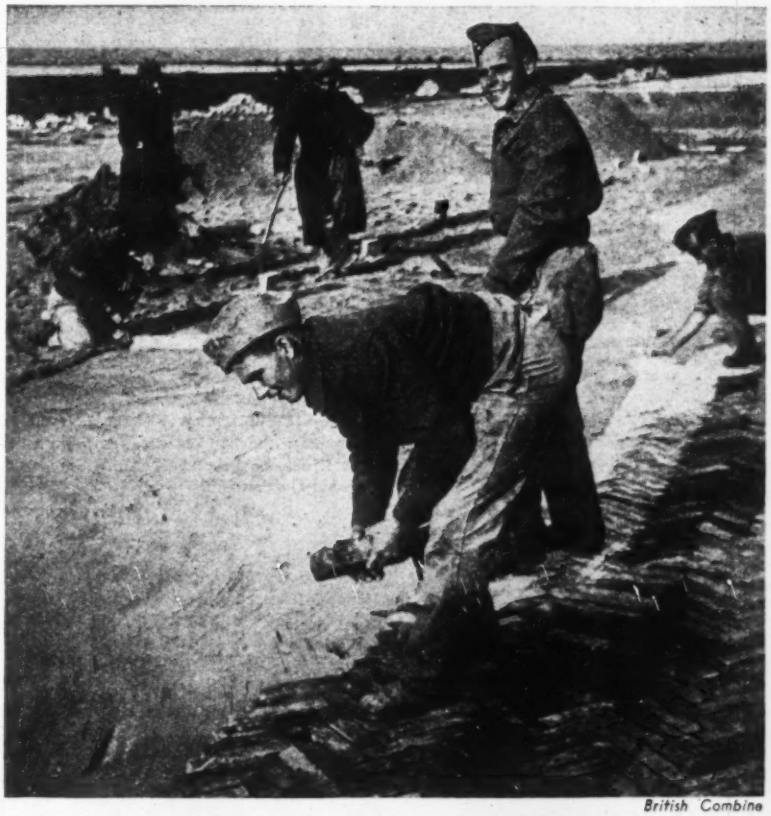
The new bill, like HR 2426, provides for federal participation in the cost of right-of-way, which is a departure from past practices. In both bills the term construction is defined as "the supervising, inspecting and actual building, and all expenses incidental to construction of a highway, including locating, surveying and mapping, cost of right-of-way, and elimination of hazards at railway grade crossings."

## Sand pumping to restore California beaches

Restoration of 3½ miles of eroded beaches between the neighboring California resort towns of Santa Monica and Venice by pumping 1,000,000 cu. yd. of sand from the ocean is scheduled to begin about April 1.

Erosion of the beaches, a few miles west of the outskirts of Los Angeles, started in 1934 soon after the construction of a breakwater at Santa Monica. Presence of the breakwater caused an accumulation at that point of large deposits of sand which otherwise would have been deposited on the beaches. Meanwhile, sections of the beaches have receded as much as 200 ft.

The engineers now plan to pump the accumulated sand from behind the Santa Monica breakwater and deposit it on the destroyed beach areas. The sand will be carried through a pipe line to behind stone groins along the 3½-mile strip.



British Combine

## A new kind of runway construction in Italy

*The British Airfield Construction Group, which cooperated with the Desert Air Force throughout the North African and Sicilian campaigns, is now engaged in laying landing fields in Italy for fighters and fighter-bombers. Construction of weather-resisting runways is a major consideration due to heavy rains. The type illustrated above is on an advanced landing field. Bricks obtained locally are being laid in herringbone pattern by British sappers. They are being helped by Basuto workmen from South Africa.*

# JOBS OF THE WEEK

**STARCH PLANT, Clewiston, Fla.**

United States Sugar Corp., Clewiston will construct starch plant by own forces. The estimated cost is $7,000,000.

**OIL WELLS, Raymondville, Tex.**

Tom Graham Drilling Co., San Antonio, has been awarded a contract by the Pan American Production Co., Houston, Tex., for drilling fifty deep test oil wells, about 8,000 ft. each at an estimated cost of $1,600,000.

**IMPROVING RAILROAD, Montana**

Great Northern Railway Co., C. M. Nye, chief engineer, St. Paul, Minn., awarded a contract for straightening rail lines in Belton Canyon region, including a 2,100-ft. tunnel, two 700-ft. tunnels, relocating 4.5 miles of single track and 1.33 mi. of doube track to A. Guthrie & Co., St. Paul, Minn. The estimated cost is $1,500,000.

**PULP and PAPER MILLS, Peninsula, Ont.**

Foundation Co. of Canada, Ltd., Toronto, Ont., has been awarded a contract for a pump and paper mill by Marathon Paper Mills, Toronto, Ont. The estimated cost is $1,500,000.

**FACTORY ADDITION, Columbus, O.**

M and R Dietetic Laboratory, Inc., Columbus, O., awarded a contract for the construction of a 4-story, 42x64-ft. factory addition and 1-story, basement, 55x64-ft. power plant, including boilers, stokers, feed water pumps and heaters, to E. E. Elford & Son, Columbus, O. The estimated cost is $500,000. H. E. Beyster Corp., Detroit, Mich., is engineer. Henry Eiselt, Columbus, O., is architect.

**RUNWAYS, McClelland Field, Calif.**

A Teichert & Son, Sacramento, Calif., has been awarded a contract for runways at McClelland Field, by U. S. Engineers, at $1,105,007.

**GRAIN ELEVATOR, Windsor, Ont.**

Hiram Walker & Sons Grain Corp., Windsor, awarded a contract for 1,325,000-bushel capacity grain elevator, trucking shed with hydraulic lift, unloading building and drier house, to Pigott Construction Co., Hamilton, Ont. The estimated cost is $1,000,000. C. F. Howe Co. Ltd., Port Arthur, Ont., is the engineer.

**PIPE LINE and ROAD, Venezuela**

Creole Petroleum Corp., care of Standard Oil Co. of New Jersey, and Mene Grande Oil Co., care of Gulf Oil Corp., both of Caracas and New York, N. Y., awarded a contract for 100 miles 16-in. steel pipe line carrier between Jusepin-Mulata area to Puerto la Cruz, to Williams Brothers Corp., Tulsa, Okla., and to Oklahoma Contracting Co., Dallas, Tex. The estimated cost is $2,500,000; 80-mile branch highway radiating from main highway outside Puerto la Cruz awarded to Morrison-Knudsen Constr. Co., Los Angeles, Calif., Williams Brothers Corp., Tulsa, Okla., and Raymond Concrete Pile Co., New York, N. Y. The estimated cost is $2,600,000.

**RAILWAY, Quebec**

Canadian National Railway Co., H. A. Dixon, chief engineer, Montreal, Que., awarded a contract for the construction of fifteen miles of railway between Eastern Junction and Bout de L'Isle to C. A. Pitts, Ltd., Toronto, and to Dominion Construction Co., Leaside, Ont. The estimated cost is $2,800,000.

**POWER TUNNEL INTAKE, etc., Seattle, Washington**

General-Shea-Morrison, Seattle, Wash., have been awarded a contract by the City of Seattle for the excavation for a power tunnel intake, gate and air vent, shafts, power tunnel transition sections and part of both tunnels; also concrete work for part of intake structure and concrete lining in power tunnel transition sections at Ross Dam in Skagit Valley at $1,848,927. E. R. Hoffman, Seattle, is the city engineer.

**HOUSING, New Orleans, La.**

R. P. Farnsworth, New Orleans, La., has been awarded a contract for constructing dwellings and site improvements for Florida Avenue Housing Project by the Housing Authority of New Orleans, New Orleans, La. Benson, Olschner & Spink, New Orleans, are the architects. The estimated cost is $2,210,744.

Note—Additional bidding and contract news on many projects large and small appear in the Construction News section beginning on page 12.

## Wyoming selects new highway superintendent

J. R. Bromley, former construction and maintenance engineer for the Wyoming State Highway Department, has been appointed state highway superintendent, effective March 1. He succeeds J. G. Smith, who resigned to reenter the highway contracting field with the A. H. Read Co. of Cheyenne. Mr. Bromley received his engineering training at the University of Utah. He has been connected with the Wyoming Highway Department since 1918, advancing progressively through various positions to the one he now holds.

• • •

## Aldrich continues as consulting engineer

Ellwood H. Aldrich has announced that he will continue the consulting engineering practice of Newsom and Aldrich. On March 1 his partner, Reeves Newsom, became manager of Scarsdale, N. Y. (*ENR*, Feb. 3, Vol. p. 160) Mr. Aldrich will maintain offices in New York City and in Williamsburg, Virginia.

A graduate of Beloit College, Mr. Aldrich studied at M.I.T. and received his engineering degree at the University of Illinois. After service overseas as lieutenant in the U. S. Army in 1917-1918, he became city engineer of Wisconsin Rapids, Wis., and held that position until 1925. From 1925 to 1927 Mr. Aldrich was principal assistant engineer with Morris Knowles, Inc., Pittsburgh, and from 1927 to 1930 he held the same position with Nicholas S. Hill, Jr., New York. During these two engagements Mr. Aldrich was the designer of many waterworks and municipal sewage disposal projects.

From 1930 to 1938 he was engaged in various activities, including private practice, and the design and supervision of construction of a water system and sewerage investigations for Lingnan University, Canton, China. Mr. Aldrich has also been engineer with the water bureau of the New York Public Service Commission, and chief engineer, Community Water Service Co.

## OBITUARY

**Elton David Walker,** 74, professor emeritus of civil engineering at Pennsylvania State College, died Feb. 24. Mr. Walker had been affiliated with the college since 1900, serving as head of the department of civil engineering from 1907 until his retirement in 1939. He received a B.S. in civil engineering from the Massachusetts Institute of Technology in 1890. He taught engineering at M.I.T. and Union College before joining the Penn State faculty.

**William G. Thornally,** 69, Oakland, Calif., general contractor and construction engineer, died Feb. 16. He was president of the Oakland Builders' Exchange for five years and head of the California State Builders' Exchange in 1941.

**F. W. Dimmitt,** 61, civilian engineer at the United States naval air station at Ottumwa, Ia., for several months, died there recently.

**Everett P. Weatherly,** 66, president of List & Weatherly Construction Co., died Feb. 22 in Kansas City, Mo. He was president of the Associated General Contractors of Missouri. He was graduated from Missouri University in 1899, receiving the degree of bachelor of science in civil engineering. Mr. Weatherly from 1909 to 1911 was head construction engineer for the Chicago, Burlington and Quincy Railroad. From 1911 to 1914 he was engineer for the Kansas City Terminal Co.

**N. C. Thompson,** 91, of Reidsville, N. C., died Feb. 19. He helped build the Richmond and Danville Railroad, later the Southern Railway.

**John J. Gilmore,** president of G. L. Carlton, Contractors, St. Louis, Mo., died Feb. 14. He was in charge of construction at Camp Joseph T. Robinson, Little Rock, Ark., Camp Crowder, Neosho, Mo., Camp Phillips, Salina, Kan., and the North American bomber plant in Kansas City, Mo.

**Edward Brown Donohue,** 48, former chief engineer of the Montana State Highway Department and more recently manager for the Pleasantville Construction Co. on a government construction project in the Bahamas, died Feb. 9, in New York City. A graduate of the University of Wisconsin, he had served as chief engineer of the Montana State Water Conservation Board.

**Capt. Milton Arthur Bell,** 63, for 33 years with the U. S. Engineers, prior to his retirement, died Feb. 16 at Memphis, Tenn.

**William Bishop Fleming,** a maintenance engineer with the Pennsylvania State Highway Department for 33 years, died at Harrisburg Feb. 17.

**Thomas F. Morris,** 66, contractor who helped build a large part of the present New York subway system, died Feb. 15. Mr. Morris, who was formerly superintendent of the contracting firm of Atwell, Gustin & Morris, Inc., which specialized in subway construction, retired three years ago. A native of Council Buffs, Iowa, and a graduate of Creighton University, Mr. Morris began his career with his brother, Michael J. Morris, as a railroad contractor in the middle and western states.

**William J. Fuller,** 61, professor of civil and structural engineering in the University of Wisconsin, died Feb. 26 at Madison, Wis. Professor Fuller was graduated in 1906 from the University of South Dakota. He joined the Extension Department of the University of Wisconsin in 1911, and nine years later went to China as an instructor in the Nan-Yang College. He returned to the University of Wisconsin in 1922 to become professor of engineering.

**Grantley A. Ross,** 58, a civil engineer attached to the county engineer's office at Salem, Mass., died at Haverhill, Feb. 18.

## CONTRACTS AND CAPITAL

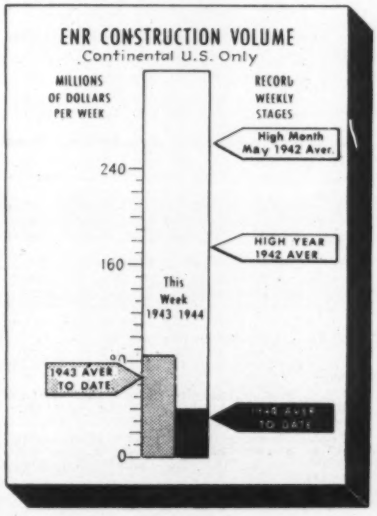
CIVIL ENGINEERING construction volume in continental U. S. totals $39,411,000 for the week. This volume, not including the construction by military engineers abroad, American contracts outside the country, and shipbuilding, is 54 percent lower than in the corresponding 1943 week, but exceeds the $22,161,000 reported for the holiday-shortened preceding week.

Private construction for the week is 143 percent higher than a year ago. Public construction, however, is 67 percent lower than last year due to the 77 percent decline in federal volume. State and municipal construction is 133 percent above the 1943-week total.

The current week's new construction brings 1944 volume to $313,807,000 for the nine-week period, a decrease of 49 percent from the $618,877,000 for the opening nine weeks of 1943. Private construction, $66,215,000, is 15 percent higher than last year, but public construction, $247,592,000 is 56 percent lower as a result of the 59 percent decrease in federal volume.

In the classified construction groups, gains over last week are in sewerage, bridges, industrial and public buildings, streets and roads, and unclassified construction. Industrial buildings, streets and roads, and earthwork and drainage are above their 1943-week totals.

New capital for construction purposes for the week totals $1,152,000, and is made up entirely of state and municipal bond sales. The week's new construction financing brings 1944 volume to $159,953,000, a total that compares with $29,039,000 for the corresponding nine weeks of 1943.




### CONTRACTS
**Continental U. S. Only**
**(Thousand of Dollars)**

| | Week Ending Mar. 4 1943 | Feb. 24 1944 | Mar. 2 1944 |
|---|---|---|---|
| Federal | $76,535 | $16,749 | $17,276 |
| State & Municipal | 3,923 | 2,453 | 9,151 |
| Total Public | $80,458 | $19,202 | $26,427 |
| Total private | 5,351 | 2,959 | 12,984 |
| TOTAL | $85,809 | $22,161 | $39,411 |
| Cumulative 1944 (9 weeks) | | | $313,807 |
| 1943 (9 weeks) | | | $618,877 |

Note: Minimum size projects included are: Waterworks and waterways projects, $15,000; other public works, $25,000; industrial buildings, $40,000; other buildings, $150,000.

### NEW PRODUCTIVE CAPITAL

| | 1943 9 weeks | Cumulative 1944 9 weeks |
|---|---|---|
| NON-FEDERAL | $29,039 | $69,121 |
| Corp. Securities | ... | 47,176 |
| State & Mun. | 27,539 | 16,370 |
| RFC Loans | 1,500 | 5,575 |
| FEDERAL | ... | $90,832 |
| TOTAL CAPITAL | $29,039 | $159,953 |

### ENR INDEX NUMBERS

| Index base=100 | | 1913 | 1926 |
|---|---|---|---|
| Construction Cost | Feb. '44 | 295.05 | 141.83 |
| Building Cost | Feb. '44 | 232.03 | 125.43 |
| Volume | Jan. '44 | 114. | 50. |

# CONSTRUCTION REPORTS

*Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York*
*ELSIE EAVES, Manager* *SCOTT McLEOD, Statistician*
(Daily service also available—Write for details)

## WATER SUPPLY

### PROPOSED WORK

**O., Canton**—Deep water well in Cook Park Section augmenting city's fast dwindling supply, $15,000. J. Shisler, city engr.

†**Utah, Elwood**—Town, culinary water supply lines, **FWA.** H. C. Jessen, Newhouse Bldg., Salt Lake City, FWA engr.

★**Wash., Tacoma**—City, R. D. O'Neill, Comr. Pub. Utilities City Hall, replacements on Green River gravity water supply lines, $567,000. W. A. Kunigh, City Hall, water supt.

### BIDS ASKED

*Bids Asked March 9*

**D. C., Wash.**—District Comrs., District Bldg., deep well and pump, pump house and water distr. sys., at District Training School, near Laurel, Md.

*Bids Asked March 14*

**Colo., Wheatridge**—Wheatridge Water Distr., 6776 W. 38 Ave., Denver, 8,000 ft. 8 in. water line. Plans deposit $10, $5 returnable. C. H. Coberly, 1441 Wilton St., Denver, engr. CD 1/13—ENR 1/20.

†**Tex., Amarillo**—J. A. Jenkins, mayor, City Hall, Contr. 2, furnishing, installing water well pumps, Tex. 41-676N. $15,000. **FWA.** Plans deposit $10, Freese & Nichols, Capps Bldg., Fort Worth, engrs.

### LOW BIDDERS

**Tenn., Nashville**—Utility Service Corp., E. P. Radabaugh, McGavock Lane, filtration plant, at Williams Creek Pumping Station, from Bush Bldg. Co., 805 8 Ave. N., $103,750. Est. $139,000. CD 11/9—ENR 11/11.

**Tex., Houston**—City, M. H. Westerman, secy., City Hall, 13 in. o.i. watermain in Evergreen St., Lawndale and 75 St., incl. fittings, valves, fire hydrants, miscellaneous accessories, from John Hefferman, Jr., 3252 Charleston St., $32,805.

**Tex., Leonard**—City, L. Stallings, mayor, Feb. 14, water supply well and well pump house, from Layne-Texas Co., Ltd., 3901 Elm St., Dallas, approx. $18,201. CD 1/20—ENR 1/27.

### CONTRACTS AWARDED

†**Del., Fort Miles**—U. S. Eng., Penn Mutual Bldg., 6 and Walnut Sts., Phila., Pa., pump. station, reservoir and main, Contr. 36-109-Eng-286, to White Constr. Co., 95 Madison Ave., New York, N. Y., $29,969.

**Mass., Wrentham**—Town Bd. Water Comrs., W. T. Smith, chn., gravel packed well pump. station, c.i. pipeline to D. L. Mahar Co., 38 b Brattle St., Cambridge, $20,460. Bids 2/16. CD 2/8—ENR 2/10.

†**N. C., Cherry Point (br. New Bern)**—Yards & Docks, Navy Dpt., 18 St. and Constitution Ave. N.W., Wash., 25, D. C., water and sewer services, and plumbing, M C A S, NOY 8878, to Albemarle Plumbing & Heating Co., Inc., Cherry Point, $65,225.

†**N. C., Jacksonville**—Federal Works Agency, 601 State Planters Bank Bldg., Richmond, 19, Va., addnl. water facilities, NC 31-123, to Norfolk Contracting Co., 1530 Bainbridge Blvd., Norfolk, Va., $23,121; imprv. sewerage sys., addnl. lines, etc., to Blythe Bros., Co. Inc., 424 S. Brevard St., Charlotte, $23,235. **FWA.** Bids 2/10. CD 2/1—ENR 2/3.

†**Ore., Astoria**—Yards & Docks, Navy Dpt., 18 St. and Constitution Ave. N. W., Wash., 25, D. C., water supply line, Naval Hospital, NOY 8623, to Empire Constr. Co., 4506 S. E. 39 Ave., Portland, $56,950. CD 2/2.

**Tex., Galveston**—G. W. Fraser, mayor, WW imprvs., incl. installing emergency standby equipment at Altaloma Waterworks Plant, to Texas Gulf Constr. Co., 2215½ Mechanic St., $18,901. Est. $19,000. G. Thornton, 3330 R St., Galveston, engr.

**Tex., Houston**—C.i. watermains in San Felipe and Chilton Rds., to J. Heffernan, Jr., 3252 Charleston St., $36,656.

## SEWERS, WASTE DISPOSAL

### PROPOSED WORK

**Ill., Granite City**—Reconstructing sewerage sys. $339,000. Applying for **FWA** funds. C. H. Sheppard, City Hall, city engr.

Location of ENR Correspondents

*Symbols and Abbreviations Include:*

| | |
|---|---|
| † | Federal Government |
| ★ | Project of $500,000 or over. |
| **ENR** | Engineering News-Record |
| **CD** | Engineering News-Record Construction Daily |
| **A-E-M** | Architect-Engineer-Management type of contract |

*Projects—By Size*

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger; water supply, earthwork, waterworks, $15,000; other public works, $25,000; industrial buildings, $40,000; other buildings, $150,000.

*Classes of Construction*

(Named in order of Listing)

| | |
|---|---|
| Water Supply | Unclassified |
| Sewers, Waste Disposal | Latin America |
| Bridges | Public Buildings |
| Streets & Roads | Commercial Buildings |
| Earthwork, Waterways | Industrial Buildings |

*Stages Reported*

PROPOSED: (except Streets & Roads);
BIDS ASKED (new announcements only. For full calendar, see also preceding issues of ENR)·
LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

**Note:** To comply with censorship requirements, addresses on some reports are being generalized. Data which would reveal the purpose of the improvements and the size are withheld. The name of contractor and general area are reported.

**Ia., Knoxville**—N. D. Shinn, mayor, City Hall, sewage plant expansion, imprvs. $25,000.

**Ia., Spencer**—D. S. Blake, mayor, City Hall, surveys sewage treatment and disposal plant. $30,000. Green Eng. Co., Cedar Rapids, engr.

**O., Youngstown**—24- to 48-in. storm water projects. $75,000. J. Gould, Jr., city engr.

**Kan., Hays**—Sewage plant exten., imprvs. $55,000. Applied for FWA funds. Wilson & Co., Salina, engrs. CD 2/1—ENR 2/3.

†**Tenn., Chattanooga**—Red Bank Utility Dist., 3900 Dayton Blvd., North Chattanooga, sewerage sys. $266,000. $178,000 **FWA** gr.

**Tex., San Antonio**—New incinerators. Over $100,000. Applying for FWA funds. Thos. Coghill, City Hall, engr.

**Wash., Seattle**—City, County-City Bldg., Zone 4, sewers serving View Ridge Dist. $248,000. C. L. Wartelle, County-City Bldg., city engr.

**Wash., Sunnyside**—Sewerage sys. exten. to serve new housing, $55,000.

**Ont., Aylmer**—Sewage disposal sys. About $35,000. F. Bell, Court House, St. Thomas, engr.

### BIDS ASKED

*Bids Asked in March*

†**R. I., Middletown** — Federal Works Agency, 99 Chauncy St., Boston, Mass., 3,700 lin. ft. 8- to 18-in. sewers right-of-way through private property crossing Beacon St. and Maple Ave., R. I. 37-135. $40,000. Jenks & Ballou, 2800 Industrial Trust Bldg., Providence, engrs. CD 12/23—ENR 12/30.

*Bids Asked March 9*

**Ill., Chicago**—H. E. Wallace, acting clk. Sanitary Dist. of Chicago, 910 S. Michigan Ave., coffer-damming and dewatering 3 race recesses at Chicago River controlling works.

*Bids Asked March 15*

†**N. Y., Rotterdam**—At office P. Owen, town clk., Town Hall, Vinewood Ave., Unit 1, completing collecting sys., installing approx. 5,800 lin. ft. 8 and 10 in. street and 2,700 ft. 5 in. house laterals, manholes, Unit 2, sludge storage tank, sludge beds, etc., at treatment plant of Sewer Dist. 2, War. Pub. Works Proj. No. 30-245; adv. ENR 3/2.

*Bids Asked March 16*

†**Conn., Bridgeport**—City, F. Schwarzkopf, clk., City Hy. Comm., City Hall, Contr. 1, 2,460 ft. 21- to 36-in. sanitary trunk sewers and 860 ft. 12- to 21-in. storm sewers, Stratford and Waterview Aves., Conn. 6-107. **FWA.** Plans deposit $10. H. L. Rowland, City Hall, engr. CD 1/19—ENR 1/27.

*Bids Asked April 10*

**T. H., Honolulu**—At office clerk City and County of Honolulu, two 3 story, 65x68 ft. rein.-con. incinerator bldgs., on pile fdns., etc. Plans deposit $50. Metcalf & Eddy, 1300 Statler Bldg., Boston, 16, Mass., engrs. adv. ENR 3/2.

### LOW BIDDERS

**Calif., Van Nuys**—Lockheed Aircraft Corp., 1705 Victory Pl., Burbank, 2 mi. vitr. clay sanitary sewer, 12 in. pipe, from S. Radan, 1677 Hill Dr., Los Angeles, $46,253; 18 in. and 21 in. pipe, from G. Miller, 2147 W. Silverlake Dr., Los Angeles, $46,253.

**Md., Lansdowne**—Westinghouse Electric Mfg. Co., Union Bank Bldg., Pittsburgh, Pa., Feb. 10, sewage treatment plant, from Davis Constr. Co., 9 W. Chase St., Baltimore. Est. over $35,000. CD 2/4.

†**Md., Patuxent River (br. Wash., D. C.)**—Yards & Docks, Navy Dpt., 18 St. and Constitution Ave. N. W., Wash., 25 D. C., Feb. 23, sewage plant, NOY 8521, from John A. Johnson Contg. Corp., 268 41 St., Brooklyn, N. Y., $297,415. CD 2/14—ENR 2/17.

**Wash., Pasco**—City, City Hall, Feb. 21, sewer extens., from B. H. Sheldon, 174 Post St., Spokane, $59,291. J. W. Cunningham, Spalding Bldg., Portland, Ore., engr. CD 11/29—ENR 12/2.

### CONTRACTS AWARDED

†**N. J., Newark**—U. S. Eng., 120 Wall St., New York, 5, N. Y., sanitary sewers and water distr. lines, to Jaehnig & Peoples, 213 Ave., $25,000.

**Ont., Kingston**—F. J. Parker, city clk., replacing 12 in. with 30 in. concrete sewer, Charles St., constructing new 30 in. concrete sewer as outlet from Charles and Rideau Sts., to Cataraqui River, to Caswell Const. Ltd., 56 Rand St., Kirkland Lake, about $47,000. Bids 1/22. CD 1/5—ENR 1/13.

## BRIDGES

### BIDS ASKED

*Bids Asked March 7*

**Mich., Litchfield**—E. L. Bird, chn. Hillsdale Co. Rd. Comn., Hillsdale, steel, concrete bridge, incl. 53 ft. steel beams on skew angle, 30 ft. roadway, 250 cu. yd. plain and rein.-con. $25,000. Plans deposit $5.

*Bids Asked March 16*

**California**—State Div. Hys., G. T. McCoy, state hy. engr., State Bldg., Los Angeles, rein.-con. bridge across San Diego River in San Diego, X1-SD-77-DS, San Diego Co.

### LOW BIDDERS

**Florida**—State Rd. Dpt., Tallahassee, Feb. 22, reconstructing, repairing Siesta Bridge, S.P. 1700-901, at Sarasota, Sarasota Co., from The Aetna Steel Constr. Co., 1[illegible] Market St., Jacksonville, $27,607. CD 2/17.